

## INTRODUCTION

- Polyethylene glycol 3350 and electrolytes (PEG) is a common solution for colonoscopy preparation and generally well-tolerated by patients apart from taste
- A 4 Liter (L), split-dose regimen of PEG has been shown to be superior to other bowel regimens
- While generally considered safe, case reports suggest the potential for volume overload in the setting of PEG administration
- Our aim is to describe a patient with multiple cardiopulmonary comorbidities who developed acute hypoxic respiratory failure and pulmonary edema after excess PEG administration

## CASE DESCRIPTION

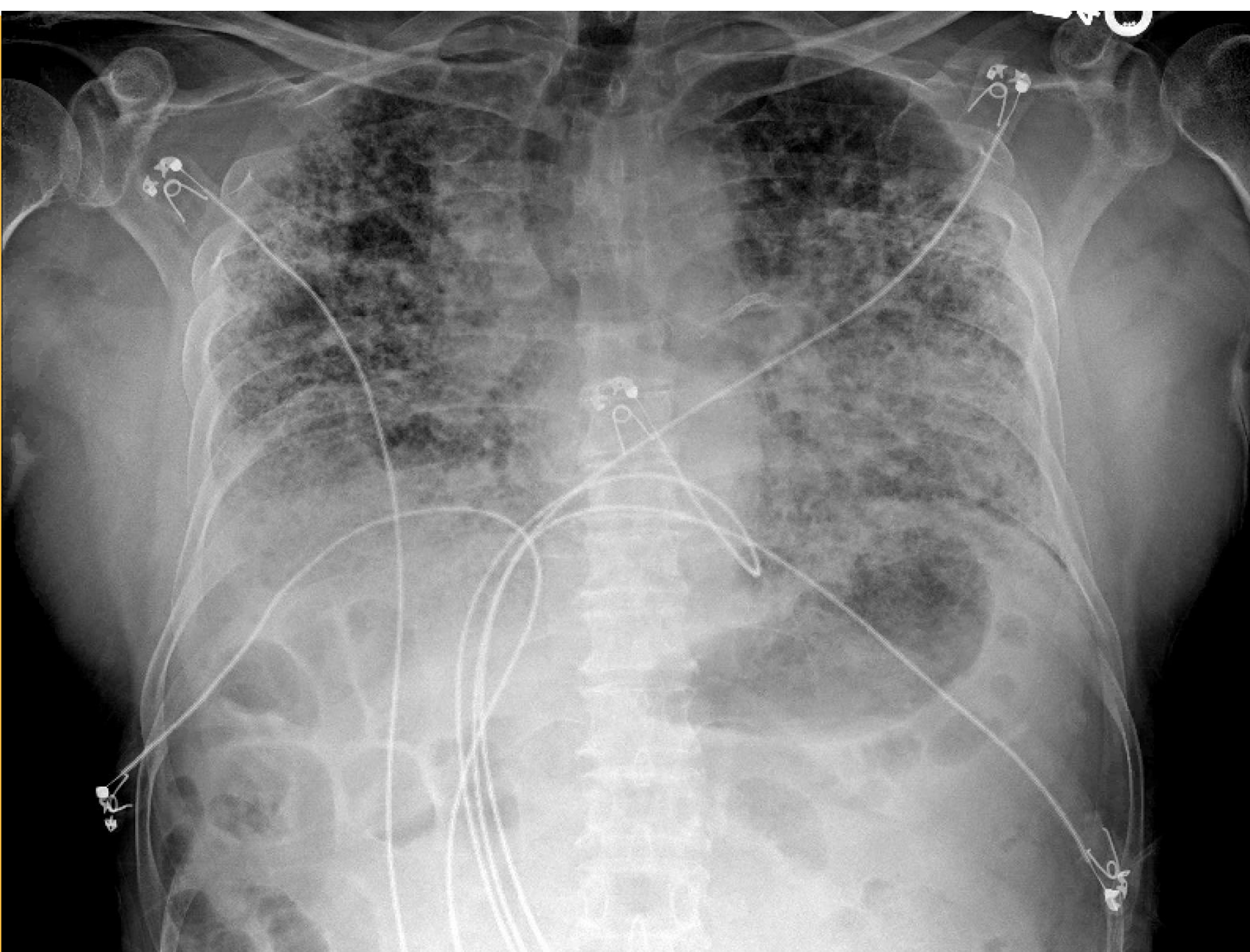
- A 55-year-old man with interstitial lung disease (ILD), mild pulmonary hypertension, and coronary artery disease with multiple stents was admitted with cough and constitutional symptoms.
- Initial exam was notable for severe hypoxia and tachypnea, requiring high flow nasal cannula and eventual intubation. He received broad-spectrum antibiotics and corticosteroids with extubation within four days. Post-extubation he underwent a lung transplant evaluation given his severe ILD
- Given his tenuous respiratory status, computed tomography (CT) colonography was recommended for colon cancer screening as part of his transplant evaluation
- Despite an initial 4L fixed-dose of PEG, his stools were not clear. He received an additional 12 L of PEG in 4L or 2L doses over three days, but his stools continued to have sediment
- He then developed worsening hypoxia. Brain natriuretic peptide (BNP) was elevated to 475 ng/mL (from 50 ng/mL) with chest X-ray and bedside echocardiogram concerning for volume overload
- Bowel preparation was held, and the patient's imaging and clinical status improved with diuresis
- He was re-trialed on a split dose of 6L PEG administered via NG tube at 1L/hour with acceptable bowel preparation quality without cardiopulmonary complications
- His CT colonography demonstrated no colonic polyps or malignancy and the patient eventually underwent successful bilateral orthotopic lung transplantation

## Images

**Image 1: Chest X-ray Prior to PEG administration**



**Image 2: Chest X-ray After PEG administration**



**Image 3: Prone CT Colonography Coronal View**



## DISCUSSION

- Inadequate bowel preparation is often a barrier to inpatient colonoscopies. Several contributing factors were demonstrated in this case including bed-ridden status, lack of initial split-dose regimen, and inadequate rate of consumption of PEG
- Prior research has demonstrated 6-8 L of PEG, about half of what was consumed by our patient, can increase mean plasma volume up to 29.8% in some patients
- In this patient with high-risk cardiopulmonary comorbidities and recent intubation, excess PEG administration in the setting of suboptimal bowel preparation likely led to PEG-associated pulmonary edema
- From a review of existing literature, there are less than ten cases worldwide with similar outcomes

## CONCLUSIONS

- Providers must consider judicious use of PEG for colonoscopy preparation and ensure adherence to the recommend rate of consumption especially in high-risk patients with limited reserve
- In the appropriate clinical context, providers should consider PEG-associated pulmonary edema as a possible etiology of respiratory decompensation and be quick to offer therapeutics

## REFERENCES

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